MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 3, 2018/2019

BDM2384 – DATABASE MANAGEMENT SYSTEMS
(All sections / Groups)

01 JUNE 2019
9.00 a.m – 11.00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 4 pages (including cover page) with 4 questions only.

2. Attempt ALL FOUR questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please write all your answer in the Answer Booklet provided.

Question 1 (25 Marks)

a) Database Design can be modelled using a systematic approach, referred to as the Database Development Life Cycle (DBLC). Outline the major steps that you would take in setting up a database for an enterprise.

(10 Marks)

b) The following are problems that have been identified during the development of a new system. In which part of the life cycle do you think these problems could have originated and been identified by a thorough review following that stage in the development life cycle?

(5 Marks)

    i.   A customer record will allow for the storage of a name, UK address, evening and daytime phone numbers, one mobile phone number and as many email addresses as the customer wants to include.

    ii.   The performance of the system is poor – failing to respond quickly enough to meet the stated user requirement of interactive, screen-based use.

    iii. We need to relate customer orders to their credit card details. If the credit card is invalid, we need to know before any orders are accepted.

    iv. An order must have the opportunity to include a delivery address that is different from the customer's credit card billing address.

    v.   No user manuals were provided.

c) Identify the problem in the given entity-relationship diagram and provide a suitable solution to solve it.

(10 Marks)
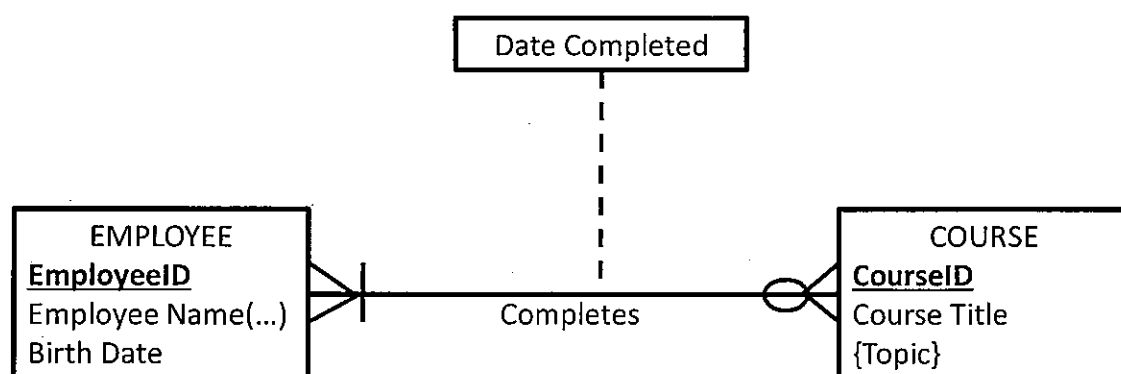
Question 2 (25 Marks)

Kevin Sdn Bhd is a car dealership company which sells both new and used cars, and it operates a service facility. Following are the business rules of the company

- A salesperson may sell many cars, but each car is sold by only one salesperson.
- A customer may buy many cars, but each car is bought by only one customer.
- A salesperson writes a single invoice for each car he or she sells.
- A customer gets an invoice for each car he or she buys.
- A customer may come in just to have his or her car serviced; that is, a customer need not buy a car to be classified as a customer.
- When a customer takes one or more cars in for repair or service, one service ticket is written for each car.
- The car dealership maintains a service history for each of the cars serviced. The service records are referenced by the car's serial number.
- A car brought in for service can be worked on by many mechanics, and each mechanic may work on many cars.
- A car that is serviced may or may not need parts (e.g., adjusting a carburetor or cleaning a fuel injector nozzle does not require providing new parts).

Required
a) Show entity names, primary keys, attribute types for each entity.

(10 Marks)

b) Create an ERD to show how you would model this data. Show relationships between the entities and cardinality clearly.

(15 Marks)

Question 3 (25 Marks)

SALESREP

SalesRepNo	RepName	HireDate
654	Jones	01/02/2005
734	Smith	02/03/2007
345	Chen	01/25/2018
434	Johnson	11/23/2004

CUSTOMER

CustNo	CustName	Balance	SalesRepNo
9870	Winston	500	345
8590	Gonzales	350	434
7840	Harris	800	654
4870	Miles	100	345

Continued...

Write the SQL commands for the following queries;

a) Create SALESREP, CUSTOMER TABLE with appropriate referential integrity constraints.

(10 Marks)

b) Insert the first two records of each table

(2 Marks)

c) Show the average balance of all customers associated with a specific sales representative.

(3 Marks)

d) Display all information in the table CUSTOMER about customers whose CustName starts with the letter H

(3 Marks)

e) Display all information in the table CUSTOMER about the customer whose customer number is 8590.

(3 Marks)

f) Display only the name of the sales representative and the name of the customer for each customer that has a balance greater than 400.

(4 Marks)

Question 4 (25 Marks)

a) A *real-time data warehouse* is a *data warehouse* that is updated the moment the transaction happens in the source system. What types of applications would benefit from real-time data warehousing? Give 2 examples.

(8 Marks)

b) Describe conceptually how big data differs from traditional relational database management systems. Give examples.

(7 Marks)

c) Analytics are typically divided into descriptive, predictive, and prescriptive analytics. Describe each category and provide an example question that each category would address.

(10 Marks)

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